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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/058,252	01/29/2002	Alistair Neil Coles	1509-270	3542

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EXAMINER	
SELLERS, DANIEL R	
ART UNIT	**PAPER NUMBER**
2615	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/058,252	COLES ET AL.	
	Examiner	Art Unit	
	Daniel R. Sellers	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27 and 30-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27 and 30-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Response to Arguments

2. Applicant's arguments, see p. 16, filed January 11, 2007, with respect to the rejection of claims 1, 15, 16, 18, 32, and 33 under 35 USC 102(e) have been fully considered and are persuasive. The rejection of claims 1, 15, 16, 18, 32, and 33 has been withdrawn.

3. Applicant's arguments, with respect to the rejections under 35 USC 103 have been fully considered but they are not persuasive.

4. Regarding claims 1, 15, 16, 18, 32, and 33, Hassan is used to show that one of ordinary skill in the art at the time of the invention would have controlled the data rate for the purpose of reducing the use of power and/or bandwidth (Col. 1, lines 15-18). Further, Hassan teaches that high fidelity is not critical for efficient communication (Col. 1, lines 29-31) and teaches that there may be a time when high fidelity is required (Col. 1, lines 38-40). The aim of Hassan is to reduce the power and bandwidth requirements needed for the communication system (Col. 2, lines 31-35). King teaches that a bandwidth of at least 13 kHz is needed for adequate spatialization, which the primary reference, Connor, utilizes to create a focus sound or track. Now, one can conclude that King places a lower limit on the bandwidth and Hassan teaches an upper limit of

high fidelity, which is typically about 20 kHz. Furthermore, Connor teaches that a foreground, or priority position, sound requires the highest degree of intelligibility (Col. 3, lines 5-17). It is obvious when looking at the three references, that the teachings suggest a method of saving bandwidth by allocating fewer resources to the background, or non-priority, sounds.

5. Regarding the dependent claims 2-14, 17, 19-27, 30, 31, and 34-36, see the preceding argument with respect to the independent claims.

6. Regarding claims 7 and 23, it is inherent that the burst sound is stored *in a cache or buffer*, because of the method in which the sound is delivered to the system. The combination of Connor, Hassan, King, and Slezak teaches broadcast sound in a digital system, wherein it is an inherent feature in either sending, receiving, or mixing the sound that the sound is buffered. The buffering of the sound is analogous to storage.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. **Claim 32** is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 32 is seeking patent protection for a computer program as evidenced by the language in the preamble:

"A computer program stored on a computer-usable medium...".

A computer program is non-statutory. The applicant can use language, such as "A computer readable medium having a stored computer program", or the like can be used to claim a computer-processing related claim.

Claim Rejections - 35 USC § 103

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. **Claims 1-5, 10, 12-13, 15-21, 26, and 32-36** are rejected under 35 U.S.C. 103(a) as being unpatentable over Connor (previously cited), Hassan et al., (previously cited), and King et al. (submitted in IDS mailed 4/10/02) (hereinafter Connor, Hassan, and King, respectively).

11. Regarding **claim 1**, Connor teaches an interactive audio system (Col. 5, lines 17-29 and Fig. 5) comprising:

an audio source (Fig. 5, unit 68);

a playing terminal adapted to be coupled to the audio source by a data link (Fig. 5, unit 26);

an audio transducer arrangement (Fig. 5, unit 74) and a user control device adapted to be coupled to the playing terminal (Fig. 5, unit 68),

wherein the audio source is arranged to transmit a plurality of audio components to the playing terminal by the data link (Col. 2, lines 40-43, Fig. 1 and Fig. 2), each audio component comprising audio data relating to *a different* audible sound *source* or *a different audio* track (Col. 2, lines 40-47), the playing terminal being arranged to output,

via the audio transducer arrangement, the audible sound or track corresponding to each audio component, by the audio transducer arrangement (Col. 4, lines 4-9), the user control device being arranged to enable user-selection of one of the audio components as a focus component based on the user selecting one of the audible sounds or tracks being emitted *by* the audio transducer (Col. 5, lines 17-29 and 53-58). However, Connor does not teach a playing terminal, which can control the data rate of transmitted data relating to each audio component.

Hassan teaches a playing terminal being further arranged to control the data rate of transmitted data (Col. 1, line 15 - Col. 2, line 11 and Col. 2, line 63 - Col. 3, line 8), relating to each audio component (Col. 2, lines 15-23), sent from the audio source to the playing terminal (inherent), the data rate of transmitted data being dependent on the selected focus sound or track (with support from King). It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Connor and Hassan for the purpose of saving bandwidth or power.

King teaches motivation for saving bandwidth in a system using Connor's and Hassan's teachings. The playback terminal of Connor and Hassan allows a user to select the fidelity of the transmitted track, where Connor teaches multiple sound tracks. The combination of Connor and Hassan do not implicitly teach that a focus track is transmitted at a different rate, however King teaches that "broadband signals encompassing frequencies from 0 to (at least) 13 kHz are required in order for listeners to accurately localize signals actually presented from a range of spatial locations." (abstract and p.294, Discussion, para. 1-5.). It would have been obvious for one of

ordinary skill in the art at the time of the invention to combine the teachings of Connor, Hassan, and King for the purpose of saving bandwidth.

12. Regarding **claim 2**, the further limitation of claim 1, Connor teaches HRTF filtering (Col. 4, lines 29-43) and King teaches that HRTF's allow spatial processing audio components so as to add positional data, indicating a position in space relative to the audio transducer, at which each audio component is to be perceived (p. 287, Introduction, para. 1-2 and p.288, para. 2).

13. Regarding **claim 3**, the further limitation of claim 2, Connor teaches plural audio transducers, where each of the audio transducers being at a different location relative to a user location so a user can perceive the direction of sound from each transducer (Fig. 5, units 74 and 76). King teaches positional data relating to (a) the three-dimensional position in space at which the audible sound or track is to be perceived (p. 288, para. 5). Connor teaches (b) an audio transducer associated with the focus component (col. 1, line 66 - col. 2, line 4), wherein the left and right transducers present the sound source at the center of the soundstage. Connor also teaches (c) an audio transducer associated with a component that is not a focus component (col. 2, lines 4-8), and Hassan and King teach the focus component data rate being greater than the data rate of a component that is not a focus component (Hassan, col. 2, lines 12-19 and King, abstract).

14. Regarding **claim 4**, the further limitation of claim 1, it is inherent that the data rate is defined by a transmission bit-rate, and the combination teaches that a playing terminal is arranged to set the bit-rate of the focus component (Hassan, col. 2, lines 24-

26). It is obvious to use first and second different predetermined bit-rates, wherein conventional hi fidelity audio is presented with broadband signals encompassing 20 Hz to 20 kHz and King teaches at least 0 - 13 kHz. It would have been obvious to use a predetermined bit-rate, such as a constant bit-rate or variable bit-rate, corresponding to each bandwidth requirement, where the hi fidelity requirement is used for the focus component and King's requirement is used for the non-focus components.

15. Regarding **claim 5**, the further limitation of claim 4, see the preceding argument with respect to claim 4. It is inherent that the higher quality audio reproduction requirement for the focus component corresponds to a higher bit-rate, such as a higher constant bit-rate or higher average bit-rate.

16. Regarding **claim 10**, the further limitation of claim 1, see the preceding argument with respect to claim 1. Connor teaches a user control device that uses a button (col. 5, lines 10-16).

17. Regarding **claim 12**, the further limitation of claim 1, see the preceding argument with respect to claim 1. The combination teaches a wireless data link (Hassan, col. 1, lines 54-56).

18. Regarding **claim 13**, the further limitation of claim 12, see the preceding argument with respect to claim 12. Connor teaches an interactive audio spatialization system using an example of a telephonic conference call and Hassan teaches a wireless device in a radio communication system. It is well known that a mobile telephone connection is a wireless device in a radio communication system, therefore the combination teaches this feature.

19. Regarding **claim 15**, see the preceding argument with respect to claim 1. The combination teaches these features.

20. Regarding **claim 16**, see the preceding argument with respect to claim 1. The combination teaches these features. Connor teaches two ports, wherein one receives a plurality of audio sources (col. 1, 11-19) and the second port receives user selection commands (col. 5, lines 7-29). It is inherent that a processing means processes the information received at the first and second ports.

21. Regarding **claim 17**, the further limitation of claim 16, see the preceding argument with respect to claim 3. The combination teaches spatialized audio with these features.

22. Regarding **claim 18**, see the preceding argument with respect to claim 1. The combination teaches these features, wherein a control signal is sent to control the data rate of transmitted data by either the transmitter or receiver (Hassan, col. 2, lines 25-27).

23. Regarding **claim 19**, the further limitation of claim 18, see the preceding argument with respect to claim 3. The combination teaches spatialized audio with these features.

24. Regarding **claim 20**, the further limitation of claim 19, see the preceding argument with respect to claim 3. The combination teaches positional data relating to a three dimensional space for spatial processing.

25. Regarding **claim 21**, the further limitation of claim 18, see the preceding argument with respect to claim 5. The combination teaches the transmission of the focus element at a higher bit-rate.

26. Regarding **claim 26**, the further limitation of claim 18, see the preceding argument with respect to claim 10. The combination teaches a user control device that uses a button.

27. Regarding **claim 32**, see the preceding argument with respect to claims 1 and 18. The combination teaches these features.

28. Regarding **claim 33**, see the preceding argument with respect to claims 1 and 18. The combination teaches these features.

29. Regarding **claim 34**, the further limitation of claim 1, see the preceding argument with respect to claims 1 and 3. The combination teaches that plural sounds can be transmitted at higher bit-rates than the non-focus, or unimportant, audio components.

30. Regarding **claim 35**, the further limitation of claim 15, see the preceding argument with respect to claims 15 and 34. The combination teaches these features.

31. Regarding **claim 36**, the further limitation of claim 18, see the preceding argument with respect to claims 18 and 34. The combination teaches these features.

32. Claims **6-7, 14, 22-23, and 30-31** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Connor, Hassan, and King as applied to claim 1 above, and further in view of Slezak.

33. Regarding **claim 6**, the further limitation of claim 1, the combination of Connor, Hassan, and King teaches a playing terminal that is arranged to control the data rate of transmitted data sent from the audio source by causing the audio source to stream the focus component at a predetermined bit-rate. However they do no teach a non-continuous data burst, or fraction, of audio data relating to the sound or track to be transmitted.

Slezak teaches an interactive audio system with spatialized audio (col. 5, lines 43-65, fig. 3, col. 7, lines 21-36, and fig. 5), wherein periodic audible tones, or chimes are played on the interactive system (col. 7, lines 37-54). It is obvious that a simulated sound source tracking the position of a user with respect to other sound sources is not the focus track, therefore the prior combination in view of Slezak teaches a non-continuous data burst, or a periodic chime, of audio data relating to at least one non-focus sound or track. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Connor, Hassan, King, and Slezak for the purpose of tracking a user's position audibly.

34. Regarding **claim 7**, the further limitation of claim 6, see the preceding argument with respect to claim 6. The combination teaches the reception of a non-focus component, wherein the component is a burst of audio data. It is inherent that the audio data is stored, at least in a buffer or a cache, subsequent to replaying at the playing terminal.

35. Regarding **claim 14**, the further limitation of claim 1, see the preceding argument with respect to claim 1. Slezak teaches that the user can browse sub-elements using the spatialized audio (Col. 7, line 62 – Col. 8, line 17).

36. Regarding **claim 22**, the further limitation of claim 18, see the preceding argument with respect to claim 6. The combination teaches the transmission of non-continuous burst data relating to the non-focus component.

37. Regarding **claim 23**, the further limitation of claim 22, see the preceding argument with respect to claim 7. It is inherent that the audio data is stored, at least in a buffer or a cache, subsequent to replaying at the playing terminal.

38. Regarding **claim 30**, the further limitation of claim 18, see the preceding argument with respect to claim 14. The combination teaches the browsing of sub-elements using the spatialized audio.

39. Regarding **claim 31**, the further limitation of claim 18, see the preceding argument with respect to claim 14. The combination teaches the use of hyperlinks.

40. **Claims 8, 9, 24, and 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Connor, Hassan, and King as applied to claim 1 above, and further in view of Kobayashi.

41. Regarding **claim 8**, the further limitation of claim 3, see the preceding argument with respect to claim 3. Kobayashi teaches a user interface that is mounted on the body (p.11, design of head interface paragraphs and p. 13, head interface paragraph). The combination of Connor, Hassan, and King teach the features of the parent claims,

however they do not teach the use of head tracking or using a position sensor on a body part for user input. Kobayashi teaches an audio browser, and in one feature is the ability to track the users head movement for the purpose of bringing one of a plurality of sounds into focus within a three-dimensional soundscape. It would have been obvious for one of ordinary skill in the art to combine the teachings of Connor, Hassan, King and Kobayashi for the purpose of audibly browsing the Internet using a more natural user interface. Kobayashi teaches that it is more natural for a user to turn their head towards the sound, on which the user wishes to focus their attention.

42. Regarding **claim 9**, the further limitation of claim 8, see the preceding argument with respect to claim 8. In the combination, Kobayashi teaches the use of a head-mountable sensor.

43. Regarding **claim 24**, the further limitation of claim 18, see the preceding argument with respect to claim 8. The combination teaches these features.

44. Regarding **claim 25**, the further limitation of claim 24, see the preceding argument with respect to claim 9. The combination teaches these features.

45. Claims **11 and 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Connor, Hassan, and King as applied to claim 1 above, and further in view of Frulla et al., USPN 6,424,357 (submitted in an IDS and hereinafter Frulla).

46. Regarding **claim 11**, the further limitation of claim 1, the combination of Connor, Hassan, and King teach the features of the parent claim. However they do not teach

the feature of voice controlled operation. Frulla teaches a user interface that receives audible commands and interprets them (col. 3, lines 56-63). It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Connor, Hassan, King, and Frulla for the purpose of hands free computing or for allowing persons with locomotive disabilities to use the interface taught by Connor.

47. Regarding **claim 27**, the further limitation of claim 18, see the preceding argument with respect to claim 11. The combination teaches these features.

Conclusion

48. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dutkovich, USPN 4,176,252 - col. 2 teaches an interactive audio system, which employs audio spatialization; and

Yamazaki, USPN 6,343,130 - col. 2, lines 38-58 teaches a system, wherein a measure of a CPU's performance determines between a high or low precision sound reproduction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel R. Sellers whose telephone number is 571-272-7528. The examiner can normally be reached on Monday to Friday, 9am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571)272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SINH TRAN
SUPERVISORY PATENT EXAMINER

DRS